

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An electrostatic painting apparatus comprising:
a bell applicator having a paint receptacle and being movable to and from a docking position;
a paint canister in said bell applicator connected to said paint receptacle;
a paint filling station, said bell applicator being movable relative to said filling station;
and
at least two paint injectors attached to said filling station, each of said paint injectors being adapted to be connected to a different color paint, said filling station being actuatable to move each of said paint injectors selectively to the docking position along a docking axis for engagement with said paint receptacle for filling said paint canister with paint, said paint injectors being mounted in two rows facing a common axis and the docking position is on the common axis.

Claims 2-6 (Cancelled)

7. (Currently Amended) The apparatus according to claim 6 1 wherein said paint injectors are each mounted for reciprocating movement along an associated interface axis to and from the docking position.

Claim 8 (Cancelled)

9. (Original) The apparatus according to claim 1 including a fluid control valve connected to said paint receptacle, said valve having a stationary portion and a moving portion, said stationary and moving portions being engaged for supplying cleaning fluid to clean said paint receptacle and being disengaged for providing voltage block protection during a painting operation of said bell applicator.

Claims 10-15 (Cancelled)

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16. (Previously Presented) A voltage block and color change apparatus for a waterborne paint bell applicator comprising:

a bell applicator having a paint receptacle and being movable to and from a docking position;

a paint canister in said bell applicator connected to said paint receptacle;

a paint filling station;

at least two paint injectors movably attached to said filling station for individual movement toward and away from the docking position along an interface axis, said at least two paint injectors being selectively movable along a docking axis to align a selected one with the interface axis; and

a firing cylinder actuatable to move said selected one paint injector along the interface axis to the docking position for engagement with said paint receptacle for filling said paint canister with paint.

17. (Original) The apparatus according to claim 16 including a paint injector valve in each of said at least two paint injectors and means for sensing an absence of said bell applicator at the docking position to prevent opening of said paint injector valves.

18. (Original) The apparatus according to claim 16 wherein each of said at least two paint injectors is mounted on an associated slide movable on said filling station.

19. (Original) The apparatus according to claim 18 including a return spring for moving each said slide and said associated paint injector away from the docking position.

20. (Original) The apparatus according to claim 16 including a plurality of paint injectors mounted in two rows movable relative to the docking position, said rows forming a generally V-shaped assembly.

21. (Previously Presented) The apparatus according to claim 1 further comprising:
said paint canister containing a piston slidably disposed in a cylinder for receiving and
dispensing paint;
a robot wrist attached to said bell applicator;
a robot arm attached to said robot wrist; and
a means for moving said piston in said cylinder to dispense paint from said cylinder and
to refill said cylinder with paint, said means for moving being remotely located
from said bell applicator and said robot wrist and being coupled to said piston by
a flexible rotary shaft.

22. (Previously Presented) The apparatus according to claim 21 wherein said means for
moving said piston includes a servomotor mounted in said robot arm and wherein said flexible
rotary shaft extends from and is rotated by said servomotor, said shaft extending through said
robot arm and said robot wrist to a ball screw driving said piston.

23. (Previously Presented) The apparatus according to claim 1 further comprising:
said paint canister containing a piston slidably disposed in a cylinder for receiving and
dispensing paint;
a robot wrist attached to said bell applicator;
a robot arm attached to said robot wrist; and
a servomotor for moving said piston in said cylinder to dispense paint from said cylinder
and to refill said cylinder with paint, said servomotor disposed within a housing of
said bell applicator and connected to an electrical wire bundle, said bundle having
electrical wires disposed within at least one tube, said bundle extending from said
servomotor through said robot wrist and through said robot arm and adapted to be
connected to a power source, and said at least one tube and said housing being gas
pressured.

24. (Previously Presented) The apparatus according to claim 23 including an air supply line connected to said robot arm for supplying pressured air to said housing through said at least one tube.

25. (Previously Presented) The apparatus according to claim 24 including at least one of a purge pressure switch mounted in said housing for measuring a pressure of the air in said housing and a maintenance pressure switch mounted in said housing for measuring a pressure of the air in said housing.

26. (Previously Presented) The apparatus according to claim 24 including at least one of a purge pressure relief valve mounted in said housing for allowing a predetermined amount of the air in said housing to purge outside said housing and a safety relief valve mounted in said arm to protect from an overpressure condition.

27. (Currently Amended) A method of operating an electrostatic painting apparatus to fill a paint canister with paint comprising the steps of:

- a) providing a bell applicator having a paint receptacle and a paint canister ~~in the bell applicator~~ connected to the paint receptacle;
- b) providing a paint filling station having at least two paint injectors attached to the filling station, each of the paint injectors being adapted to be connected to a different color paint;
- c) moving the bell applicator to a fixed docking position adjacent the paint filling station; and
- d) selecting one of the paint injectors and moving the one paint injector to the docking position along a docking axis for engagement with the paint receptacle for filling the paint canister with paint;
- e) providing a shroud washer adjacent the docking position; and
- f) receiving the bell applicator in the shroud washer during said step c).

Claim 28 (Cancelled)

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29. (New) An electrostatic painting apparatus comprising:

a bell applicator;

a paint receptacle;

a paint canister connected to said paint receptacle for receiving paint through said paint receptacle;

a paint filling station, said paint receptacle being movable to and from a docking position adjacent said filling station; and

at least two paint injectors attached to said filling station, each of said paint injectors being adapted to be connected to an associated different color paint supply, said filling station being actuatable to move each of said paint injectors selectively to the docking position along a docking axis and into engagement with said paint receptacle whereby when said paint receptacle is engaged with one of said paint injectors, paint can be transferred from the associated paint supply to said paint canister through said one of said paint injectors and said paint receptacle, and whereby said paint receptacle is disengaged from said one of said paint injectors before said paint receptacle is moved from the docking position.

30. (New) The apparatus according to claim 29 wherein said paint injectors are mounted in a circular pattern spaced about a rotatable annular manifold and are rotated to the docking position.

31. (New) The apparatus according to claim 29 wherein said paint injectors are mounted in a linear pattern on a manifold and are moved along a linear path to the docking position.

32. (New) The apparatus according to claim 29 wherein said paint injectors are included in a plurality of paint injectors mounted in at least two rows facing a common axis and the docking position is on the common axis.

33. (New) The apparatus according to claim 32 wherein said paint injectors are each mounted for reciprocating movement along an associated interface axis to and from the docking position.

34. (New) The apparatus according to claim 29 wherein said paint injectors are mounted in a circular pattern spaced about an annular manifold and said manifold is movable toward and away from the docking position.

35. (New) The apparatus according to claim 29 including a paint injector valve in each of said at least two paint injectors and means for sensing an absence of said bell applicator at the docking position to prevent opening of said paint injector valves.

36. (New) The apparatus according to claim 29 wherein each of said at least two paint injectors is mounted on an associated slide movable on said filling station.

37. (New) The apparatus according to claim 29 including a return spring for moving each said slide and said associated paint injector away from the docking position.

38. (New) The apparatus according to claim 29 including a plurality of paint injectors mounted in two rows movable relative to the docking position, said rows forming a generally V-shaped assembly.

39. (New) The apparatus according to claim 1 including a paint injector valve in each of said at least two paint injectors and means for sensing an absence of said bell applicator at the docking position to prevent opening of said paint injector valves.

40. (New) The apparatus according to claim 1 wherein each of said at least two paint injectors is mounted on an associated slide movable on said filling station.

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41. (New) The apparatus according to claim 1 including a return spring for moving each said slide and said associated paint injector away from the docking position.

42. (New) The apparatus according to claim 1 including a plurality of paint injectors mounted in two rows movable relative to the docking position, said rows forming a generally V-shaped assembly.

43. (New) An electrostatic painting apparatus comprising:

a bell applicator having a paint receptacle and being movable to and from a docking position;

a paint canister connected to said paint receptacle for receiving paint through said paint receptacle;

a paint filling station having a shroud washer, said bell applicator being movable to and from a docking position, said bell applicator being received in said shroud washer in the docking position; and

at least two paint injectors attached to said filling station, each of said paint injectors being adapted to be connected to an associated different color paint supply, said paint receptacle being selectively engagable with each of said paint injectors in the docking position whereby when said paint receptacle is engaged with one of said paint injectors, paint can be transferred from the associated paint supply to said paint canister through said one of said paint injectors and said paint receptacle, and whereby said paint receptacle is disengaged from said one of said paint injectors before said bell applicator is moved from the docking position.

44. (New) The apparatus according to claim 43 wherein said paint injectors are included in a plurality of paint injectors spaced about said shroud washer.

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